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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,014	05/31/2001	Francis Briand	S 5405 US-OP/MM	8422

466 7590 09/11/2002

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EXAMINER

MC Henry, KEVIN L

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 09/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,014

Applicant(s)

BRIAND ET AL.

Examiner

Kevin L McHenry

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 and 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Specification

1. The abstract of the disclosure is objected to because "Figure 3" is listed at the end of the abstract. This notation is unnecessary and should be deleted. Correction is required. See MPEP § 608.01(b).
2. The disclosure is objected to because of the following informalities:

There is no brief description of the drawings.

Appropriate correction is required.

Claim Objections

3. Claim 3 is objected to because of the following informalities:

In line 5 of claim 3, "N₇" is listed instead of "N₂".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the edges" in line 3 of claim 1. There is insufficient antecedent basis for this limitation in the claim. For examination purposes the examiner interpreted this language to mean "edges".

Claim 1 recites the limitation "the welding zone" in lines 7-8 of claim 1. There is insufficient antecedent basis for this limitation in the claim. For examination purposes the examiner interpreted this language to mean "a welding zone".

Claim 1 recites the limitation "the operation" in line 9 of claim 1. There is insufficient antecedent basis for this limitation in the claim. For examination purposes the examiner interpreted this language to mean "welding".

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 2 recites the broad recitation "non zero and less than or equal to 20% by volume", and the claim also recites "preferably non zero and less than or equal to 15% by volume" which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean "non zero and less than or equal to 20% by volume" for claim 2.

In the present instance, claim 3 recites the broad recitation “of at least one additional compound chosen from H₂, O₂, CO₂, N₂”, and the claim also recites “an additional compound chosen from H₂, O₂, CO₂, N₂” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean “of at least one additional compound chosen from H₂, O₂, CO₂, N₂” for claim 3.

In the present instance, claim 3 recites the broad recitation “of at least one additional compound chosen from H₂, O₂, CO₂, N₂”, and the claim also recites “an additional compound chosen from H₂, O₂, CO₂, N₂” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean “of at least one additional compound chosen from H₂, O₂, CO₂, N₂” for claim 3.

In the present instance, claim 4 recites the broad recitation “a gas mixture consisting of argon with a content greater than or equal to 70% by volume and of 0.1 to 30% by volume of several additional compounds chosen from H₂, O₂, CO₂, N₂”, and the claim also recites “preferably a mixture of argon, O₂, and CO₂” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean “a gas mixture consisting of argon with a content greater than or equal to 70% by volume and of 0.1 to 30% by volume of several additional compounds chosen from H₂, O₂, CO₂, N₂” for claim 4.

In the present instance, claim 5 recites the broad recitation “of at least one additional compound chosen from H₂, O₂, CO₂, N₂”, and the claim also recites “an additional compound chosen from H₂, O₂, CO₂, N₂” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean “of at least one additional compound chosen from H₂, O₂, CO₂, N₂” for claim 5.

In the present instance, claim 6 recites the broad recitation “a gas mixture consisting of helium with a content greater than or equal to 70% by volume and of 0.1 to 30% by volume of several additional compounds chosen from H₂, O₂, CO₂, N₂”, and the claim also recites “preferably a mixture of helium, O₂, and CO₂ and furthermore possibly containing H₂” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean “a gas mixture consisting of helium with a content greater than or equal to 70% by volume and of 0.1 to 30% by volume of several additional compounds chosen from H₂, O₂, CO₂, N₂” for claim 6.

In the present instance, claim 7 recites the broad recitation “a gas mixture consisting of at least 70% by volume of helium and argon and of 0.1 to 30% by volume of at least one additional compound chosen from H₂, O₂, CO₂, and N₂”, and the claim also recites “preferably a gas mixture consisting of 0.1% to 69.9% by volume of helium, of 0.1% to 69.9% by volume of argon and of 0.1 to 30% by volume of at least one additional compound chosen from H₂, O₂, CO₂, and N₂, the sum of the argon and helium contents being at least 70% of the total volume of the mixture” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean “a gas mixture consisting of at least 70% by volume of helium and argon and of 0.1 to 30% by volume of at least one additional compound chosen from H₂, O₂, CO₂, and N₂” for claim 7.

In the present instance, claim 8 recites the broad recitation “chosen from coated or uncoated steels...aluminum or aluminum alloys”, and the claim also recites “particularly assembly steels, HLES steels, carbon steels, steels having a layer of zinc

alloy on the surface, stainless steels, and high yield point steels” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean “chosen from coated or uncoated steels or aluminum or aluminum alloys” for claim 8.

In the present instance, claim 9 recites the broad recitation “made of steel”, and the claim also recites “especially carbon steel” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean “made of steel” for claim 9.

In the present instance, claim 11 recites the broad recitation “a gas mixture consisting of at least 90% by volume of helium or of argon and of 0.1 to 10% by volume of at least one additional compound chosen from O₂ and CO₂”, and the claim also recites “preferably of at least 96% by volume of helium or argon and of 0.1 to 4% by volume of at least one additional compound chosen from O₂ and CO₂” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean “a gas mixture consisting of at least 90% by volume of helium or of argon and of 0.1 to 10% by volume of at least one additional compound chosen from O₂ and CO₂” for claim 11.

In the present instance, claim 12 recites the broad recitation “a gas mixture consisting of at least 85% by volume of helium or of argon and of 0.1 to 15% by volume of H₂”, and the claim also recites “preferably of at least 90% by volume of helium or argon and of 0.1 to 10% by volume of H₂” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to

mean “a gas mixture consisting of at least 85% by volume of helium or of argon and of 0.1 to 15% by volume of H₂” for claim 12.

In the present instance, claim 13 recites the broad recitation “a gas mixture consisting of at least 70% by volume of helium and/or argon and of 0.1 to 30% by volume of N₂”, and the claim also recites “preferably of at least 80% by volume of helium and/or argon and the balance being N₂” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean “a gas mixture consisting of at least 70% by volume of helium and/or argon and of 0.1 to 30% by volume of N₂” for claim 13.

In the present instance, claim 20 recites the broad recitation “joining together, by welding, metal workpieces”, and the claim also recites “particularly tailored blanks” which is the narrower statement of the range/limitation. For examination purposes the examiner interpreted this language to mean “joining together, by welding, metal workpieces” for claim 20.

Claim 16 uses the language “preferably the laser beam and said arc are delivered by a single welding head”. This language is indefinite since it is unclear if the laser and arc are definitively delivered by a single head or not. Therefore, the scope of the claim is unclear. For examination purposes the examiner interpreted this language to mean “the laser beam and said arc are delivered by a single welding head”.

Claim 17 recites the limitation “the electrode” in line 2. There is insufficient antecedent basis for this limitation in the claim. For examination purposes the examiner interpreted this language to mean “an electrode for striking the electric arc”.

Claim 21 recites the limitation "the two longitudinal edges" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. For examination purposes the examiner interpreted this language to mean "two longitudinal edges".

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Hamasaki (U.S.P. 4,507,540).

Hamasaki teaches a process for welding metal workpieces by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc. During the welding operation at least a part of the welding zone and joint is shielded by a gas mixture of argon and helium (see U.S.P. 4,507,540; particularly Figure 3; column 1, lines 7-18, 34-36; column 2, lines 20-50).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-4, 7-9, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of Church (U.S.P. 4,572,942).

Hamasaki teaches a process for welding metal workpieces by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc. The arc has a plasma stream and is produced by a MIG welding device. During the welding operation at least a part of the welding zone and joint is shielded by a gas mixture of argon and helium (see U.S.P. 4,507,540; particularly Figure 3; column 1, lines 7-18, 34-36; column 2, lines 20-50)

Hamasaki does not teach the addition of other gases to the argon/helium mixture or compositions of such mixtures.

Church teaches a gas-metal-arc welding process that uses a shielding gas with a composition of about 40-70% argon, about 25-60% helium, about 3-10% carbon dioxide, and about 0.1-2% oxygen. Church teaches a preferable composition within this range for welding mild and low alloy steels and that this mixture aids in controlling the location of the plasma field (see U.S.P. 4,572,942; particularly column 1, lines 16-21, 63-68; column 2, lines 1-12; column 4, lines 49-60).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of Hamasaki by the teachings of Church. One would have been motivated to do so in order to aid in the control of the plasma field and to provide a shielding gas composition for welding mild and low alloy steels, as Church teaches.

10. Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of JP 355024739.

Hamasaki teaches a process for welding metal workpieces by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc. The arc has a plasma stream and is produced by a MIG welding device. During the welding operation at least a part of the welding zone and joint is shielded by a gas mixture of argon and helium (see U.S.P. 4,507,540; particularly Figure 3; column 1, lines 7-18, 34-36; column 2, lines 20-50)

Hamasaki does not teach the addition of other gases to the argon/helium mixture or compositions of such mixtures.

JP 355024739 teaches a steel welding process in which 0.2-5% nitrogen gas is added to argon, helium, or a carbonic acid gas. JP 355024739 teaches that this is done so that steels can be welded with a material that has a lesser strength than that of the steel (see JP 355024739; particularly abstract).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of Hamasaki by the teachings of JP 355024739. One would have been motivated to do so in order to be able to weld a steel with a material that has a lesser strength than the steel, as JP 355024739 teaches.

11. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of Meehan, deceased et al. (U.S.P. 3,939,323).

Hamasaki teaches a process for welding metal workpieces by producing a welded

joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc. The arc has a plasma stream and is produced by a MIG welding device. During the welding operation at least a part of the welding zone and joint is shielded by a gas mixture of helium or argon and helium (see U.S.P. 4,507,540; particularly Figure 3; column 1, lines 7-18, 34-36; column 2, lines 20-50)

Hamasaki does not teach the addition of other gases to the argon/helium mixture or compositions of such mixtures.

Meehan et al. teach a laser welding process for stainless steels that uses a shielding gas composition of helium plus 10% hydrogen. Meehan et al. also teach that the addition of helium improves weld penetration (see U.S.P. 3,939,323; particularly Figure 1; column 1, lines 5-8; column 2, lines 1-14).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of Hamasaki by the teachings of Meehan et al. One would have been motivated to do so in order to provide a shielding gas composition for stainless steels and to improve weld penetration, as Meehan et al. teach.

12. Claims 1, 5, 6, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (U.S.P. 6,034,343) in view of EP 639423.

Hashimoto et al. teach a hybrid welding process for welding metal workpieces by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc that are supplied from a single head. The arc is produced by a welding device with a consumable electrode. During the

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welding operation at least a part of the welding zone and joint is shielded by gas (see U.S.P. 6,034,343; particularly Figure; column 1, lines 20-25, 35-38, 58-67; column 2, lines 1-7; column 3, lines 56-67; column 4, lines 1-6, 38-55).

Hashimoto et al. do not teach shielding gas compositions for the welding operation.

EP 639423 teaches a gas arc welding process in which a shielding gas of argon and/or helium gas with 0.01-0.7% carbon dioxide, oxygen, or a mixture of carbon dioxide and oxygen is used to weld aluminum and aluminum alloys (see EP 639423; particularly abstract).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of Hashimoto et al. by the teachings of EP 639423. One would have been motivated to do so in order to provide a shielding gas composition, particularly one suitable for welding aluminum and aluminum alloys, as EP 639423 teaches.

13. Claims 1 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (U.S.P. 6,034,343) in view of GB 1 358 985.

Hashimoto et al. teach a hybrid welding process for welding metal workpieces by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc that are supplied from a single head. The arc is produced by a welding device with a consumable electrode. During the welding operation at least a part of the welding zone and joint is shielded by gas (see

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U.S.P. 6,034,343; particularly Figure; column 1, lines 20-25, 35-38, 58-67; column 2, lines 1-7; column 3, lines 56-67; column 4, lines 1-6, 38-55).

Hashimoto et al. do not teach shielding gas compositions for the welding operation.

GB 1 358 985 teaches an arc welding process with a consumable electrode that uses a gas shielding composition of 75-96% argon, 3-15% carbon dioxide, and 1-6% hydrogen for welding stainless steels. GB 1 358 985 also teaches that this composition reduces spattering (see GB 1 358 985; particularly page 1, lines 9-12, 31-34; page 2, lines 61-70).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of Hashimoto et al. by the teachings of GB 1 358 985. One would have been motivated to do so in order to provide a shielding gas composition for stainless steels and to reduce spatter, as GB 1 358 985 teaches.

14. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (U.S.P. 6,034,343) in view of GB 1 358 985 as applied to claims 1 and 14 above, and further in view of Cook (U.S.P. 2,790,656).

The former references teach the process as described above in section 13. However, these references do not teach that the process can be used to weld dissimilar metals.

Cook teaches a process of welding dissimilar metals to provide a strong joint by using a gas metal arc welding process with a consumable or non-consumable electrode

(see U.S.P. 2,790,656; particularly column 1, lines 15-23; column 2, lines 38-43; column 3, lines 3-5; column 4, lines 42-47).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the teachings of Cook. One would have been motivated to do so in order to use the process to weld dissimilar metals and provide a strong joint between them, as Cook teaches.

15. Claims 16, 18, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (U.S.P. 6,034,343) in view of GB 1 358 985 as applied to claims 1 and 14 above, and further in view of Beyer et al. (U.S.P. 5,821,493) and Steen (U.S.P. 4,167,662).

The former references teach the process described above in section 13. However, these references do not teach that the arc creates a plasma, that the welded joint is a vehicle body element, that workpieces can have different thicknesses, or that the operation forms a tube.

Beyer et al. teach a hybrid laser and arc process that is used to make tubes and components for vehicle bodies. The arc of the process forms a plasma and uses a TIG type electrode. Beyer et al. also teaches that the workpieces can be of different thickness and that this process allows the elimination of preparation and positioning steps (see U.S.P. 5,821,493; particularly column 1, lines 13-17, 21-65).

Steen teaches a hybrid welding process in which TIG or MIG electrodes can be used (see U.S.P. 4,167,662; particularly column 4, lines 63-66).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made that the process described above could be used to weld workpieces of different thickness, make tubing, and produce components for vehicle bodies. One would have been motivated to use this process for such operations in light of the teachings of Beyer et al. that such a hybrid process would allow the elimination of preparation and positioning steps. It would have been obvious to one of ordinary skill in the art to make the electrode taught by the process described above in section 13 a MIG electrode, as taught by Steen, as opposed to a TIG electrode, as taught by Beyer et al., because of the art recognized functional equivalence of MIG and TIG electrodes (i.e. both are suitable electrodes for a hybrid welding process).

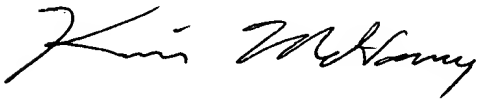
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (703) 305-9626. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-6078 for regular communications and (703) 305-6078 for After Final communications.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



September 6, 2002



M. ALEXANDRA ELVE
PRIMARY EXAMINER